

Title: Place Value – Butterflies Floating Place to Place

Brief Overview:

Students in third grade need to understand that each of the digits in a number have a specific value based on its place within the number. Prior to these lessons, students should have learned to read, write, and draw representations of three-digit numbers using base-10 blocks (place value models). In these lessons, students will continue to use base-10 blocks to represent numbers and will make connections between the **place** of the digit and the **value** of the digit in that place. Students will solve riddles using both place and value to write numbers in standard form and in expanded form.

NCTM Content Standard/National Science Education Standard:

Numbers and Operations

- Understand numbers, ways of representing numbers, relationships among numbers, and number systems

Grade/Level:

Grade 3: assessment limits are based on the Maryland Voluntary State Curriculum

Duration/Length:

Two lessons which should last about one hour in duration
Summative assessment that should take about 20 minutes

Student Outcomes:

Students will:

- Apply knowledge of whole numbers and place value by identifying the place value of a digit in a whole number
- Apply knowledge of whole numbers and place value by expressing whole numbers in expanded form

Materials and Resources:

Lesson 1

Teacher Resources

- Teacher Resource 1, *Butterfly Facts Have a Place Answer Key*
- Transparency of Teacher Resource 2, *Model, Picture, and Value Mat*
- Teacher Resource 3, *Teacher Observation Checklist*
- Teacher Resource 4, *Place and Value Riddles Answer Key*
- One blank transparency
- Teacher Resource 5, *More Place and Value Riddles*
- Teacher Resource 6, *Viewing Butterflies in the Garden Answer Key*

- Teacher Resource 7, *Butterfly Gardens Answer Key*

Student Resources

- Student Resource 1, *Butterfly Facts Have a Place*
- Set of base-10 blocks
- Student Resource 2, *Butterfly Place Value Mat*
- Student Resource 3, *Place and Value Riddles*
- Student Resource 4, *Viewing Butterflies in the Garden*
- Student Resource 5, *Butterfly Gardens*

Lesson 2

Teacher Resources

- Transparency of Teacher Resource 8, *Standard Form to Expanded Form Mat*
- Teacher Resource 9, *Expanded Form to Standard Form Mat*
- Teacher Resource 10, *I Have...Who Has?* (Print this resource on card stock if available and cut-out game pieces prior to teaching this lesson.)
- Transparency of Student Resource 7, *Expanding Numbers*
- Transparency of Student Resource 8, *Writing Standard Form*
- Transparency of Student Resource 9, *Expanded Form Brief Constructed Response*
- Transparency of Student Resource 10, *Expanded Form Brief Constructed Response Practice*

Student Resources

- Base-10 blocks (optional)
- One number cube per student
- Student Resource 6, *What's the Value?*
- Student Resource 7, *Expanding Numbers*
- Student Resource 8, *Writing Standard Form*
- Student Resource 9, *Expanded Form Brief Constructed Response*
- Student Resource 10, *Expanded Form Brief Constructed Response Practice*
- Student Resource 11, *Expanded Form Memory* (Print this resource on card stock if available.)
- Student Resource 12, *Rolling All Over the Place*

Summative Assessment

- Base-10 Blocks (optional)
- Student Resources 13a and 13b, *Butterflies Floating Place to Place Summative Assessment*
- Teacher Resources 11a and 11b, *Butterflies Floating Place to Place Summative Assessment Answer Key*

Development/Procedures:

Lesson 1

Pre-Assessment –

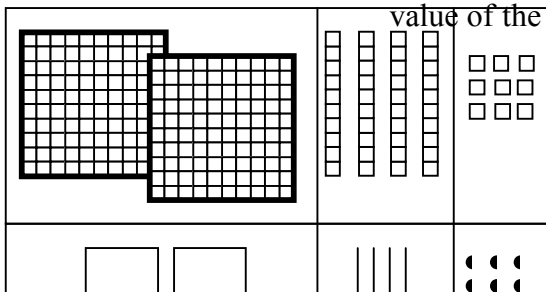
- Ask students if they know any facts about butterflies that include numbers. After three or four responses, the teacher will state that he or she has some additional butterfly facts to tell students that connect science with math.
- Distribute Student Resource 1, *Butterfly Facts Have a Place*, to the students to assess if they are able to read, write, and represent numbers from 0 to 999. Problem 1 on the resource sheet requires students to *listen* to the teacher state a fact about butterflies that includes a number. Say, “The largest butterfly, the Queen Alexandra Birdwing, has a wing span longer than 279 mm. Write the number 279.” Have students independently complete problems 2-4. Check students work using Teacher Resource 1, *Butterfly Facts Have a Place Answer Key*.

Launch –

- Distribute base-10 blocks and Student Resource 2, *Butterfly Place Value Mat*, to each student. Dividing the class into two sections, ask one group of students to represent the number “536” on their Butterfly Place Value Mats with their base-10 blocks and the other group of students to represent the number “653”. Discuss how these numbers are the same and how they are different.
Same: Both are three-digit numbers; both have the digits “3”, “5”, and “6” in the number
Different: Each has a different amount of base-10 blocks; $653 > 536$ (for example, “653” has 6 flats in the hundreds place and “536” has 5 flats in the hundreds place)

Teacher Facilitation –

- Ask a student to display the number “536” on the transparency of Teacher Resource 2, Model, *Picture, and Value Mat*, using overhead base-10 blocks. Ask another student to draw a picture that represents the five base-10 blocks in the hundreds place in the “Picture Representation” section. After drawing five flats, ask students what the value of the five flats is (500). Write that number in the “Value” section.
- Continue the same process for the tens place. Ask a student to draw a picture that represents the three base-10 blocks in the tens place in the “Picture Representation” section. After drawing three rods, ask students what the value of the three rods is (30). Write that number in the “Value” section.
- Complete the process for the ones place. Ask a student to draw a picture that represents the six base-10 blocks in the ones place in the “Picture Representation” section. After drawing 6 units, ask students what the value of the six units is (6). Write that number in the “Value” section.



- Ask students to clear their mats and begin a second example with the number, “249,” on their mats.

Continue the same process with students coming to the overhead and completing the base-10 representation, the “Picture Representation” section, and the “Value” section. Use Teacher Resource 3, *Teacher Observation Checklist*, to assess that students can use base-10 blocks to correctly represent a number.

- Ask students to clear their mats again for the third example of the number, “107”. As students are displaying this number on their individual mats, the teacher should monitor that students aren’t placing any rods in the tens place. Complete the same process with students coming to the overhead and completing the base-10 representation, the “Picture Representation”, and the “Value” section. Emphasize the fact that even though there are no base-10 blocks and no picture representation in the tens place, a “0” is needed to indicate there are no tens in this number (zero is used as a place holder). Continue teacher observations.
- Discuss the difference between the *place* of a digit and the *value* of a digit (*place* is a word that shows the position of a digit in a number; *value* is a number that shows the amount that the digit represents in that place).
- Display the number, “582,” on a blank transparency. Ask students the place of various digits and the value of various digits as an embedded assessment of place and value. For example, ask students in what place is the digit, “5” (the hundreds place). Then ask what the value is of the digit, “5,” in the hundreds place (500).
- Instruct students to put away their base-10 blocks and mats.

Student Application –

- Distribute Student Resource 3, *Place and Value Riddles*, and have students work independently. Check students work using Teacher Resource 4, *Place and Value Riddles Answer Key*. Continue to assess student work using Teacher Resource 3, *Teacher Observation Checklist*, to determine which students require a re-teaching activity and which students require an extension activity.

Embedded Assessment –

- Use Teacher Resource 3, *Teacher Observation Checklist*, to determine level of mastery in place value skills and re-teaching/extension groups.

Re-teaching/Extension –

- Gather students who require re-teaching in a small group. Distribute to each student base-10 blocks and Student Resource 1, *Butterfly Place Value Mat*. Using Teacher Resource 5, *More Place and Value Riddles*, read riddles to students. Teacher should examine where students place

base-10 blocks on the mat to determine student difficulties in determining place and in determining value.

- For those students who have mastered the skill, distribute Student Resource 4, *Viewing Butterflies in the Garden*, and allow students to work in partner groups or independently. Check students' work using Teacher Resource 6, *Viewing Butterflies in the Garden Answer Key*.
- As an optional formative assessment or exit card, use Student Resource 5, *Butterfly Gardens*. Check students work using Teacher Resource 7, *Butterfly Gardens Answer Key*.

Lesson 2

Pre-Assessment –

- Distribute and have students complete Student Resource 6, *What's the Value?* If students need base-10 blocks, have them available.

Launch –

- Have students refer to the number in problem 1 on Student Resource 6 in the “Number” Box, “345”. Explain to students that this number is written in **standard form**. Today we will be learning how this same number can be written in **expanded form**.
- Ask students what they know about the word “expanded”. Accept definitions and examples.
- Have students stand up and pretend they are butterflies. Without using words and only using their bodies, have students expand their butterfly bodies. Ask students what they are doing (spreading their wings). Even though they are expanding by spreading their wings, are students still a butterfly? (Yes)
- Have students return to seats. Ask students if they can think of other examples that show expansion (blowing air into a balloon, opening a flat book, playing an accordion, stretching a rubber band). For each example, ask if the expanded object is still the same object (yes).
- Explain that standard numbers can be expanded into a different form called expanded form.

Teacher Facilitation –

- Display transparency of Teacher Resource 8, *Standard Form to Expanded Form Mat* on the overhead. Tell students that you are going to write a number in standard form as you write the number “238” in the box labeled “Number in Standard Form”.
- Ask for a student to come to the overhead and display the number using base-10 blocks (2 flats, 3 rods, 8 units). Then ask another student to come to the overhead and write the value of each of the places in the “Value” boxes (200, 30, 8). Show students that we can also represent this number by expanding it and using the values. In the “Number in Expanded Form” box, write “ $200 + 30 + 8$ ”.

- Clear the overhead mat and display another example with the number “367”. Ask for a student volunteer to write the number in standard form, another student to display the number using base-10 blocks, a third student to write the values of the places, and another student to write the number in expanded form.
- Tell the class that this time we are going to try a number that is a little different. Ask for a student volunteer to write the number “206” in standard form. Ask students if they know why you said, “206” is different from the previous two numbers of “238” and “367” (it has a “0” as a digit). Ask for a student volunteer to display “206” using base-10 blocks (2 flats and 6 units) and another student to write the values of each of the places in the “Values” boxes (200, 0, 6). Now model how to write this number in expanded form: “ $200 + 6$ ”. Emphasize to students that if the value of a place is “0”, it should not be included in the expanded form.
- Distribute Student Resource 7, *Expanding Numbers*. Have base-10 blocks if students need to use them to draw the representations in the “Picture” boxes. Continue to assess student work using Teacher Resource 3, *Teacher Observation Checklist*. Using the transparency of Student Resource 7, *Expanding Numbers*, have students check their work.
- Ask students if they think they can create numbers by going in the opposite direction, from expanded form to standard form. Display transparency of Teacher Resource 9, *Expanded Form to Standard Form Mat* on the overhead. Tell students that you are going to write a number in expanded form as you write, “ $400 + 60 + 5$ ”, in the box labeled “Number in Expanded Form”. Ask for a student to come to the overhead and display the number using base-10 blocks (4 flats, 6 rods, 5 units). Then ask another student to come to the overhead and write the value of each of the places in the “Value” boxes (400, 60, 5). Ask students if they know the number in standard form. Write “465” in the box labeled “Number in Standard Form”. Emphasize the meaning of the digits in the places in standard form by asking what the “4” represents (“400”), the “6” represents (“60”), and the “5” represents (“5”).
- Clear the overhead mat and display another example by writing “ $100 + 70 + 3$ ” in the box labeled, “Number in Expanded Form”. Ask for a student volunteer to display the number using base-10 blocks, a second student to write the values of the places, and a third student to write the number in standard form. Ask students how they know the number in standard form is the same as the number in expanded form (the “1” in the hundreds place in standard form is the same as “100” in expanded form, the “7” in the tens place in standard form is the same as “70” in expanded form, and the “3” in the ones place is the same as the “3” in expanded form).
- Clear the overhead mat again and tell students to think carefully about this next example. Write “ $300 + 9$ ” in the box labeled “Number in Expanded Form”. Ask for a student volunteer to display the number using base-10 blocks (3 flats, 9 units.) Ask why there are no rods displayed (there are no tens in the expanded form – only hundreds and ones). Ask students what

number should be written in the “Value” section of the hundreds place (“300”). Explain to students that even though there are no rods, there is a value of zero in the tens place. Write “0” in the “Value” section of the tens place. Then ask students what number should be written in the “Value” section of the ones place (“9”). Ask students if they think they know the number in standard form. Write “309” in the box labeled “Number in Standard Form”. Ask students why there is a “0” in the tens place in the standard form of the number when there is no “0” in the expanded form of the number (because the “0” holds the tens place).

- Distribute Student Resource 8, *Writing Standard Form*. Have base-10 blocks if students need to use them to draw the representations in the “Picture” boxes. Continue to assess student work using Teacher Resource 3, *Teacher Observation Checklist*. Using the transparency of Student Resource 8, have students check their work.
- Ask students if they have enough information to communicate in writing how to write a number in expanded form from standard form. Distribute Student Resource 9, *Expanded Form Brief Constructed Response*. Display a transparency of Student Resource 9, *Expanded Form Brief Constructed Response*, on the overhead. Ask for a student to read the entire Brief Constructed Response (BCR), including Part A and Part B. Emphasize the words “use pictures” in Part B – can we draw place value pictures? (Yes). Can students do Part B first before they do Part A? (Yes).
- Model for students one-way to complete this BCR (Students should record teacher model on their copies).
 1. Draw the place value picture for “546” in the Part B section of the BCR (5 flats, 4 rods, and 6 units). Teacher Note: To view an example of a completed Brief Constructed Response, view problem #5 on Teacher Resource 11b, *Butterflies Floating Place to Place Summative Assessment Answer Key*.
 2. Write the value of the place picture underneath the pictures (“500” under the picture of the 5 flats, “40” underneath the picture of the 4 rods, “6” underneath the picture of the 6 units).
 3. On the lines of Part B, use bullets to write what the pictures mean:
 - The 5 in the hundreds place represents 500
 - The 4 in the tens place represents 40
 - The 6 in the ones place represents 6
 - So, $546 = 500 + 40 + 6$
 4. Write in Part A the expanded form “ $500 + 40 + 6$ ”
- Pair students with partners and distribute Student Resource 10, *Expanded Form Brief Constructed Response Practice*. Give students time to work with their partner to complete this BCR. Continue to assess student work using Teacher Resource 3, *Teacher Observation Checklist*.
- Using the transparency of Student Resource 10, *Expanded Form Brief Constructed Response Practice*, have students check their work. Model one way to complete this BCR:

1. Draw the place value picture for “319” in the Part B section of the BCR (3 flats, 1 rod, and 9 units).
2. Write the value of the place picture underneath the pictures (“300” under the picture of the 3 flats, “10” underneath the picture of the 1 rod, “9” underneath the picture of the 9 units).
3. On the lines of Part B, use bullets to write what the pictures mean:
 - The 3 in the hundreds place represents 300
 - The 1 in the tens place represents 10
 - The 9 in the ones place represents 9
 - So, $319 = 300 + 10 + 9$
4. Write in Part A the expanded form “ $300 + 10 + 9$ ”.

Student Application –

- The Student Application section of this lesson is interspersed within the above Teacher Facilitation section with Student Resource Sheets 7, 8, and 10.

Embedded Assessment –

- Use Teacher Resource 3, *Teacher Observation Checklist*, to determine level of mastery in standard form and expanded form skills and re-teaching/extension groups.

Re-teaching/Extension –

- Gather students who require re-teaching in a small group. Distribute base-10 blocks to each student. The teacher will have the game cards from Teacher Resource 10, *I Have...Who Has?* Distribute one game card to each student and one card to the teacher. The teacher will read the bottom of his/her card. Each student will model the number using the base-10 blocks, and the teacher will assess each student’s model. Ask the students to say the number they have created. Then ask which student has that card and explain how they know. Continue playing until students are meeting success.
- For those students who have mastered the skill, distribute Student Resource 11, *Expanded Form Memory*, to play independently. The students may also play in partners and combine their decks of cards.
- As an optional formative assessment or exit card, use Student Resource 12, *Rolling All Over the Place*. Distribute the resource sheet and one number cube per student. Students will roll the number cube three times to write digits in each of the places. Students will then write the number in standard form and in expanded form.

Summative Assessment:

- Distribute Student Resource 13a and 13b, *Butterflies Floating Place to Place Summative Assessment*. Have students complete the assessment

independently. Students may use base-10 blocks (place value models) if needed for this assessment.

- Use Teacher Resource 11a and 11b, *Butterflies Floating Place to Place Summative Assessment Answer Key*, to check the students' work.
- Skills Assessed:
 - Apply knowledge of whole numbers and place value by identifying the place and value of a digit in a whole number
 - Apply knowledge of whole numbers and place value by expressing whole numbers in expanded form
 - Present mathematical ideas using words, pictures, or numbers

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Name _____ Date _____



Butterfly Facts Have a Place!

1. Listen as your teacher tells you a fact about butterflies. Write the number in the fact on the line below.

2. There are more than seven hundred twenty-one species of butterflies found in North America.

Which number represents seven hundred twenty-one?

A. 70021

B. 721

C. 712

3. There are 176 species of butterflies found in British Columbia.

Which word form represents the number 176?

A. one seven six

B. seventeen six

C. one hundred seventy-six

4. There are 292 butterfly species found in Canada. Represent the number 292 with pictures in the box below.

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Butterfly Place Value Mat



<u>Hundreds</u>	<u>Tens</u>	<u>Ones</u>

Name _____ Date _____

Place and Value Riddles

Directions: Read the clues to solve each riddle. Write the answer to the riddle on the line next to the clues.

1. This number has a 5 in the tens place.
It has a 7 in the ones place.
It has a 4 in the hundreds place.
What is the number? _____

2. This number has a 6 in the ones place.
It has a 3 in the hundreds place.
It has a 0 in the tens place.
What is the number? _____

3. This number has a value of 80 in the tens place.
It has a value of 100 in the hundreds place.
It has a 2 in the ones place.
What is the number? _____

4. This number has a value of 900 in the hundreds place.
It has a value of 60 in the tens place.
It has a 4 in the ones place.
What is the number? _____

5. This number has a 1 in the tens place.
It has a value of 700 in the hundreds place.
It has a 3 in the ones place.
What is the number? _____



Name _____ Date _____

Viewing Butterflies in the Garden

Every class at Nectar Elementary School observed the butterfly garden in the month of May. Each class recorded the number of butterflies they saw for the month and gave the results to their principal, Mr. Flower. Mr. Flower was careful to keep the results in a safe place, but forgot to write down the name of each class.

Use the clues to help him figure out how many butterflies each class observed. Complete the table as you solve each clue.

476	803	219	550	912	348	766
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Class Name	Number of Butterflies Observed
Ms. Soar	
Mr. Zoom	
Mrs. Fly	
Mr. Proboscis	
Ms. Wing	
Mrs. Scale	
Mr. Thorax	

Clue #1 - Mrs. Scale's class observed the most butterflies.

Clue #2 - There are 8 hundreds in the amount of butterflies that Mr. Zoom's class observed.

Clue #3 - The number of butterflies that Mrs. Fly's class observed has a value of 60 in the tens place.

Clue #4 - Ms. Wing's class observed the least amount of butterflies.

Clue #5 - The number of butterflies that Mr. Thorax's class observed has a value of 0 in the ones place.

Clue #6 - There are 8 ones in the amount of butterflies that Ms. Soar's class observed.

Clue #7 - What number is left for Mr. Proboscis' class? THINK!



Name _____ Date _____

Butterfly Gardens

1. Mrs. Flutter counted 309 butterflies in her garden.

Which digit is in the tens place? _____

Which digit is in the ones place? _____

Which digit is in the hundreds place? _____

2. Mr. Wing counted 875 butterflies in his garden.

What is the value of the 5 in this number? _____

What is the value of the 8 in this number? _____

What is the value of the 7 in this number? _____

Name _____ Date _____

Butterfly Gardens

1. Mrs. Flutter counted 309 butterflies in her garden.

Which digit is in the tens place? _____

Which digit is in the ones place? _____

Which digit is in the hundreds place? _____

2. Mr. Wing counted 875 butterflies in his garden.

What is the value of the 5 in this number? _____

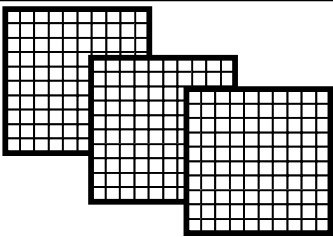
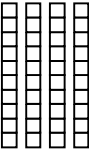
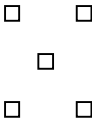
What is the value of the 8 in this number? _____

What is the value of the 7 in this number? _____

Name _____ Date _____

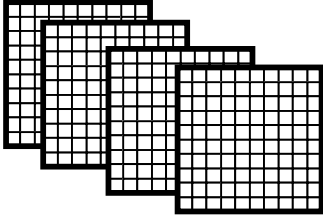


What's the Value?

1.

	Hundreds	Tens	Ones
			
Value			

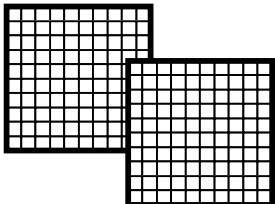

Number

2.

	Hundreds	Tens	Ones
			
Value			

Number

3.

	Hundreds	Tens	Ones
			
Value			

Number

Name _____ Date _____

Expanding Numbers

1.

Hundreds	Tens	Ones
Value		

Number in Expanded Form

Number in
Standard Form
459

2.

Hundreds	Tens	Ones
Value		

Number in Expanded Form

Number in
Standard Form
216

3.

Hundreds	Tens	Ones
Value		

Number in Expanded Form

Number in
Standard Form
307

Name _____ Date _____

Writing Standard Form

1.

	Hundreds	Tens	Ones
Value			

Number in Standard Form

Number in
Expanded Form
 $300 + 60 + 2$

2.

	Hundreds	Tens	Ones
Value			

Number in Standard Form

Number in
Expanded Form
 $400 + 80 + 5$

3.

	Hundreds	Tens	Ones
Value			

Number in Standard Form

Number in
Expanded Form
 $200 + 9$

Name _____ Date _____

Expanded Form Brief Constructed Response

The Painted Lady butterfly lays approximately 546 tiny mint green eggs during her life cycle.

Part A

Write the number 546 in expanded form on the line below.

Part B

Explain why your answer is correct.

Use what you know about place value in your explanation.

Use words, numbers, and/or pictures in your explanation.

Name _____ Date _____

Expanded Form Brief Constructed Response Practice

The Painted Lady butterfly has a natural life span of approximately 612 hours.

Part A

Write the number 612 in expanded form on the line below.

Part B

Explain why your answer is correct.

Use what you know about place value in your explanation.

Use words, numbers, and/or pictures in your explanation.

Expanded Form Memory

Directions: Cut out each of the cards. Shuffle your cards. Lay the cards face down on your desk in rows. Play Memory with your cards by turning over two cards at a time. If they match, keep them; if they don't match, turn them back over. Continue turning over two cards at a time until you have found all of the matches. When you win, shuffle your cards and play again!

346

702

519

606

420

183

 $300 + 40 + 6$ $700 + 2$ $500 + 10 + 9$ $600 + 6$ $400 + 20$ $100 + 80 + 3$

Directions: Roll your number cube three times. Put the first number in the hundreds place. Put the second number in the tens place. Put the third number in the ones place. Then write your number in standard form and expanded form.

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Name _____ Date _____



Butterflies Floating Place to Place
Summative Assessment



1. It takes about 723 hours for an adult butterfly to develop from egg to adult. In what place is the digit "7" in 723?
 - A. hundreds place
 - B. ones place
 - C. tens place
 - D. none of the above
2. Arizona has approximately 219 butterfly species. What value does the digit "1" have in 219?
 - A. 100
 - B. 1
 - C. 10
 - D. none of the above
3. There are approximately 725 species of butterflies found in USA and Canada. Write the number 725 in expanded form on the line below.

4. A butterfly remains in the pupa stage for approximately $200+80+8$ hours. Write the standard form for $200+80+8$ on the line below.

Student Resource 13b

5. Monarch caterpillars eat milkweed leaves. There are approximately 148 species of the milkweed plant.

Part A

Write the number 148 in expanded form on the line below.

Part B

Explain why your answer is correct.

Use what you know about place value in your explanation.

Use words, numbers, and/or pictures in your explanation.

Name _____ Date _____



Butterfly Facts Have a Place! - ANSWER KEY

1. Listen as your teacher tells you a fact about butterflies. Write the number in the fact on the line below.

279

2. There are more than seven hundred twenty-one species of butterflies found in North America.

Which number represents seven hundred twenty-one?

D. 70021

E. 721

F. 712

3. There are 176 species of butterflies found in British Columbia.

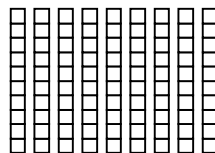
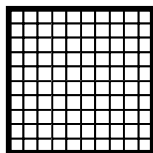
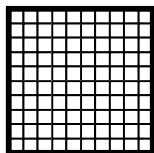
Which word form represents the number 176?

A. one seven six

B. seventeen six

C. one hundred seventy-six

4. There are 292 butterfly species found in Canada. Represent the number 292 with pictures in the box below.





Model, Picture, and Value Ma

Teacher Resource 2

<u>Hundreds</u>	<u>Tens</u>	
Picture Representation		
Value		

Teacher Observation Checklist

Student Names						
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
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27.						
28.						
29.						
30.						

Teacher Resource 4

Name _____ Date _____

Place and Value Riddles - ANSWER KEY

Directions: Read the clues to solve each riddle. Write the answer to the riddle on the line next to the clues.

1. This number has a 5 in the tens place.
It has a 7 in the ones place.
It has a 4 in the hundreds place.
What is the number? 4 5 7

2. This number has a 6 in the ones place.
It has a 3 in the hundreds place.
It has a 0 in the tens place.
What is the number? 3 0 6

3. This number has a value of 80 in the tens place.
It has a value of 100 in the hundreds place.
It has a 2 in the ones place.
What is the number? 1 8 2

4. This number has a value of 900 in the hundreds place.
It has a value of 60 in the tens place.
It has a 4 in the ones place.
9 6 4

What is the number? _____

5. This number has a 1 in the tens place.
It has a value of 700 in the hundreds place.
It has a 3 in the ones place.
What is the number? $\begin{array}{ccc} 7 & 1 & 3 \\ \hline \end{array}$

Teacher Resource 5

More Place and Value Riddles

Use the following riddles with small groups of students who need re-teaching of hundreds, tens, and ones place. Distribute a place value mat and a set of base-10 blocks to each child in the small group. Read each riddle orally to the small group and allow them to use the base-10 blocks to solve the riddle. Repeat with more riddles until the group feels confident with the skill.

Teacher says, "This number has a 3 in the tens place." Give children time to put three rods in the tens place on the mat. Discuss why the children put three rods in the tens place. Then say, "The number has a 2 in the hundreds place." Again, give the children ample time and discuss why they put the 2 flats in the hundreds section of the mat. Finally say, "The number has a 6 in the ones place." Make sure the children have enough time to place the units in the ones section and have them explain their actions.

Now say, "Look at your place value mat. What is the number?" You may need to guide the students to look at the hundreds place, then the tens, and finally the ones. Continue with more examples until students are completing the place riddles successfully.

Once they have mastered the place riddles, continue the process with value riddles. Teacher says, "This number has a value of 400 in the hundreds place." Give the children time to put four flats on the mat and discuss their action. Then say, "The number has a value of 9 in the ones place." Again, give the children time to place the 9 units on the mat and discuss. Finally say, "The number has a value of 20 in the tens place." Give time to place the 2 rods and discuss.

Now say, "Look at your place value mat. What is the number?" You may need to guide the students to look at the hundreds place, then the tens, and finally the ones. Continue with more examples until students are completing the value riddles successfully.

Name _____ Date _____



Viewing Butterflies in the Garden

ANSWER KEY

Every class at Nectar Elementary School observed the butterfly garden in the month of May. Each class recorded the number of butterflies they saw for the month and gave the results to their principal, Mr. Flower. Mr. Flower was careful to keep the results in a safe place, but forgot to write down the name of each class.

Use the clues to help him figure out how many butterflies each class observed. Complete the table as you solve each clue.

476	803	219	550	912	348	766
-----	-----	-----	-----	-----	-----	-----

Class Name	Number of Butterflies Observed
Ms. Soar	348
Mr. Zoom	803
Mrs. Fly	766
Mr. Proboscis	476
Ms. Wing	219
Mrs. Scale	912
Mr. Thorax	550

Clue #1 - Mrs. Scale's class observed the most butterflies.

Clue #2 - There are 8 hundreds in the amount of butterflies that Mr. Zoom's class observed.

- Clue #3 - The number of butterflies that Mrs. Fly's class observed has a value of 60 in the tens place.
- Clue #4 - Ms. Wing's class observed the least amount of butterflies.
- Clue #5 - The number of butterflies that Mr. Thorax's class observed has a value of 0 in the ones place.
- Clue #6 - There are 8 ones in the amount of butterflies that Ms. Soar's class observed.
- Clue #7 - What number is left for Mr. Proboscis' class? THINK!

Teacher Resource 7

Name _____ Date _____



Butterfly Gardens - ANSWER KEY

- Mrs. Flutter counted 309 butterflies in her garden.

Which digit is in the tens place? 0

Which digit is in the ones place? 9

Which digit is in the hundreds place? 3
- Mr. Wing counted 875 butterflies in his garden.

What is the value of the 5 in this number? 5

What is the value of the 8 in this number? 800

What is the value of the 7 in this number? 70

Standard Form to Expanded Form

Teacher Resource 8

Number in Standard Form	
<u>Hundreds</u>	<u>Tens</u>
Value	
Number in Expanded Form	

Expanded Form to Standard Form

Number in Expanded Form	
<u>Hundreds</u>	<u>Tens</u>
Value	
Number in Standard Form	

I Have...Who Has?

Teacher Resource 10

I have...
447

Who has
 $300 + 10 + 7$?

I have...
317

Who has
 $200 + 30 + 6$?

I have...
236

Who has
 $100 + 50 + 3$?

I have...
153

Who has
 $200 + 20 + 2$?

I have...
222

Who has
 $100 + 60 + 5$?

I have...
165

Who has
 $300 + 70 + 8$?



Butterflies Floating Place to Place
Summative Assessment



ANSWER KEY

1. It takes about 723 hours for an adult butterfly to develop from egg to adult. In what place is the digit "7" in 723?

- A. hundreds place
- B. ones place
- C. tens place
- D. none of the above

2. Arizona has approximately 219 butterfly species. What value does the digit "1" have in 219?

- A. 100
- B. 1
- C. 10
- D. none of the above

3. There are approximately 725 species of butterflies found in USA and Canada. Write the number 725 in expanded form on the line below.

$$700 + 20 + 5$$

4. A butterfly remains in the pupa stage for approximately $200+80+8$ hours. Write the standard form for $200+80+8$ on the line below.

$$288$$

Teacher Resource 11b

5. Monarch caterpillars eat milkweed leaves. There are approximately 148 species of the milkweed plant.

Part A

Write the number 148 in expanded form on the line below.

$$100 + 40 + 8$$

Part B

Explain why your answer is correct.

Use what you know about place value in your explanation.

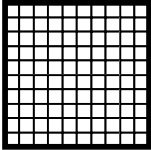
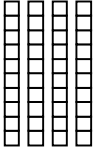

Use words, numbers, and/or pictures in your explanation.

- The one in the hundreds place represents 100

- The four in the tens place represents 40

- The eight in the ones place represents 8

- So, $148 = 100 + 40 + 8$

	Hundreds	Tens	Ones
			
Value	100	40	8